



# Transportation Synthesis Report

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## Daily Liquidated Damages

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*Transportation Synthesis Reports (TSRs) are brief summaries of currently available information on topics of interest to WisDOT technical staff in highway development, construction and operations. Online and print sources include NCHRP and other TRB programs, AASHTO, the research and practices of other state DOTs, and related academic and industry research.*

### **REQUEST FOR REPORT**

The RD&T Program was asked to report on the practices of assessing Daily Liquidated Damages (DLD) against construction projects exceeding contracted completion dates. Specifically, we have been asked to 1) Survey the practices of neighbor states for comparison to WisDOT policy, and to determine if these states employ Road User Costs (RUC) in liquidated damages assessments, and 2) Survey national trends and practices in DLD and RUC assessments.

### **SUMMARY**

- A search of transportation Web sites, searchable databases, and academic databases shows that Upper Midwest states use almost identical schedules for assessing DLD, and that none of these employ RUC in such determinations. Nationally, other states employ more precise methods of determining DLD.
- The Federal Highway Administration's guidance on liquidated damages requires, as a minimum, that damages cover the estimated average daily construction engineering (CE) costs. The amounts must be reviewed every two years and adjusted as necessary. FHWA also permits state DOTs to include additional amounts as liquidated damages to cover costs of project-related delays or inconveniences to the DOT or the public. It doesn't appear FHWA has performed a recent study of state practices regarding liquidated damages.
- Texas has led the study of RUC for at least 20 years, and employs RUC in its own DLD standards. Texas DLD assessments prove higher than the other surveyed states, reaching up to \$12,000 a day in some current projects.
- A recent NCHRP report suggests wider use of RUC.

### **UPPER MIDWEST STATES**

Wisconsin and its neighbor states employ nearly identical policies regarding DLD, and none of these consider RUC in the damages schedules. The states use nearly identical damages schedules that fit charges to broad ranges of original project contract values. These schedules have changed little in over a decade. Web links are identified below for each state's policy and charges. Printouts of pertinent pages are attached.

**Wisconsin.** Charges per calendar day range from \$175 on projects under \$100,001 to \$995 on projects of \$1 million and higher. For working day contracts, charges per day range from \$350 to \$1990 for the same project ranges. See the *Supplemental Specifications*, 2002, Section 108.11, [http://dotnet/dtidcons/std\\_dev/supplement/2001sup\\_spec.pdf](http://dotnet/dtidcons/std_dev/supplement/2001sup_spec.pdf).

**Michigan.** Charges per calendar day range from \$75 on projects under \$50,000 to \$3,000 on projects of \$10 million and higher. See the *Interim 2003 Standard Specifications*, Table 108-1, section 108.11 -- <http://www.mdot.state.mi.us/specbook/>. The 2003 schedule matches exactly the 1990 schedule; there has been no increase in the daily liquidated damages in 13 years, possibly longer.

**Minnesota.** Charges per calendar day range from \$75 on projects under \$25,001 to \$3,000 on projects of \$10 million and higher. Minnesota assesses on a schedule nearly identical to Michigan's. See *Standard Specifications for Construction*, 2000, Section 1807.1, Table 1807-1 -- <http://www.dot.state.mn.us/tecsup/spec/2d1/k1801.pdf>.

**Illinois.** Charges per calendar day range from \$300 on projects under \$25,001 to \$1,650 on projects of \$7.5 million and higher. For workday contracts, charges per day range from \$400 to \$2,300 for the same project ranges. See Section 108.9 for the schedule of liquidated damages in the *Standard Specifications for Road and Bridge Construction*, Jan. 1, 2002, <http://dot.state.il.us/desenv/pdfs/spec2002/sec100.pdf>.

**Indiana.** Charges per calendar day range from \$200 on projects under \$100,001 to \$700 on projects of \$7 million and higher. For workday contracts, charges per day range from \$700 to \$3,000 for the same project ranges. Indiana employs higher charges than most of its neighbors, but the process remains the same. See *Standard Specifications with Supplementals*, 1999 version reaffirmed for 2002, Section 108.08, with table, <http://www.ai.org/dot/div/contracts/standards/book/sep02/1-1999.pdf>.

**Ohio.** Charges per calendar day range from \$500 on projects under \$500,001 to \$2,000 on projects of \$10 million and higher. The ranges in contract value are wider than in other states. With only four categories, it is the shortest schedule surveyed. See *Construction and Material Specification*, Section 108.07 and Table 108.07-1, following the links at <http://www.dot.state.oh.us/construction/OCA/Specs/ReWrite/default.htm>, to manual chapter 100, General Provisions.

**Iowa.** Iowa assesses liquidated damages as well, but the methodology for its calculation in the specifications code is not apparent. See section 1108.08 in the Specifications, or a like section in the Construction Manual—[http://www.erl.dot.state.ia.us/Apr\\_2002/GS/frames.htm](http://www.erl.dot.state.ia.us/Apr_2002/GS/frames.htm).

## **OTHER STATES**

**Nebraska.** Though Nebraska uses daily liquidated damages in the same way as its Upper Midwest peers, it assesses charges via a formula, rather than by determining fees against broad ranges of contract value. More precise, less arbitrary, the Nebraska method ensures a daily liquidated value of six percent of the daily contract value for workday contracts, and 12 percent for calendar day contracts. See *Supplemental and Standard Specifications for Highway Construction*, Section 108.08, <http://www.dor.state.ne.us/ref-man/Specsupp/108-Supp.pdf>.

**Oregon.** Charges per calendar day range from \$50 on projects under \$25,001 to \$2,000 on projects of \$10 million and higher. For workday contracts, charges per day range from \$700 to \$2,800 for the same project ranges. Oregon employs a more detailed and sophisticated specifications code than the Upper Midwest states typically use, but nevertheless employs nearly an identical liquidated damages schedule to those used in the Upper Midwest. See *Standard Specifications*, Section 00180.85 for liquidated damages policy. <http://www.odot.state.or.us/techserv/roadway/specs/2002-book/02-00100.pdf>. For the liquidated damages schedule, see <http://www.odot.state.or.us/techserv/roadway/specs/specials/100/SP180A.DOC>.

**North Carolina.** NCDOT assesses liquidated damages for the standard administrative costs, but also for “obstruction” of traffic, public convenience, and commercial operations, yet its policies make no mention of RUC. Anticipated liquidated damages can also entail retention of a deposit, if the anticipated daily damages exceed one percent of the estimated contract value, sufficient to cover such costs. See Sections 108.8, 108.11, and 108.12, *Standard Specifications for Roads and Structures*—[http://www.doh.dot.state.nc.us/preconstruct/highway/dsn\\_srvc/specifications/](http://www.doh.dot.state.nc.us/preconstruct/highway/dsn_srvc/specifications/).

## **FHWA GUIDANCE**

The issue of liquidated damages is addressed in the U.S. Code of Federal Regulations in 23 CFR 635.127: [http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/cfr\\_2003/aprqtr/23cfr635.127.htm](http://a257.g.akamaitech.net/7/257/2422/14mar20010800/edocket.access.gpo.gov/cfr_2003/aprqtr/23cfr635.127.htm)

Background and FHWA guidance related to this regulation are found in Chapter IIIB, section 6 of the FHWA *Contract Administration Core Curriculum: Participant's Manual and Reference Guide 2001* ([http://www.fhwa.dot.gov/programadmin/contracts/cor\\_IIIB.htm#IIIB6](http://www.fhwa.dot.gov/programadmin/contracts/cor_IIIB.htm#IIIB6)). Key provisions listed are:

- Each State Transportation Agency (STA) is required to develop and maintain its own liquidated damages rates that will cover, as a minimum, the STA's average daily construction engineering (CE) costs attributable to a contract time overrun;
- The STA rates are subject to verification and approval by the Division Administrator, and at least every two years must be reviewed and adjusted, as necessary, by the STA;
- In addition to CE costs, the STA may include the costs of project-related delays or inconveniences, to the STA or to the public, in their liquidated damages provisions. In such cases, costs recovered in excess of the actual CE costs shall be deducted from the construction costs in proportion to the Federal participation on the project;
- Costs recovered in excess of the actual CE costs shall be deducted from the construction costs;
- Incentive/disincentive amounts are to be shown separately from the liquidated damages amounts and are to be based on road user costs.

A 1984 review of liquidated damages in five of the nine FHWA regions during a three-year period found that STAs were recovering only 41 percent of their total actual construction engineering costs, resulting in an estimated annual loss of \$15 million of Federal funds. The fact that this information is included in a 2001 FHWA contract administration manual is an indication that more recent reviews have not been undertaken; however, this has not been verified with FHWA.

## **ROAD USER COSTS**

### **Texas**

Texas has been studying RUC since at least the early 1980's. (The Highway Design group in NCDOT, which in its specifications hints at a punitive character to its liquidated damages methodology, refers to a 1982 Texas Transportation Institute study, Report no. FHWA/TX-83/20+292-1: *A Model to Calculate the Road User Costs at Work Zones*, J.L. Memmott and C.L. Dudek.) The Lone Star State's practices are widely cited. The use of RUC can be viewed as punitive, while liquidated damages merely reflect administrative costs. Even the liquidated damages employed by Texas are severe, exceeding \$10,000 a day on several projects ongoing.

In the TRB paper, *Estimating Road User Costs Associated with Highway Construction Projects* (G. Daniels, W.R. Stockton, R. Hundley, Transportation Research Record 1732, 2000; pp. 70-79), the authors discuss practices to use on A+B contracts and describe both liquidated damages and its RUC component as "the daily penalty to the contractor for delayed completion of a project." In the paper summary, the writers candidly refer to high-profile urban freeway projects as "ideal candidates for RUC application because of the potential for very high motorist delay costs."

An earlier paper by Daniels, Ellis and Stockton, *Techniques for Manually Estimating Road User Costs Associated with Construction Projects*, is available on the Web site of the Texas Transportation Institute at <http://tti.tamu.edu/research/planning/407730.stm>.

Daniels also discusses in an article for the *Texas Transportation Researcher* (volume 36, number 2, 2000) the inclusion of liquidated damages and RUC in incentive and disincentive provisions. (See [http://tti.tamu.edu/researcher/v36n2/motorist\\_costs.stm](http://tti.tamu.edu/researcher/v36n2/motorist_costs.stm).) She writes that TxDOT charges contractors "liquidated damages for late completion," and that calculating RUC costs is an important facet of this incentive-disincentive framing process. This process of using liquidated damages to penalize late finishes is also referred to in Texas reports in 1987 and 1994. (Report nos. FHWA/TX-87/412-1F and FHWA/TX-94/1310-1F, respectively.)

Quantitative tables for evaluating RUC for liquidated damages purposes tend to be less arbitrary than liquidated damages tables. RUC tables are based on various characteristics of the roadways in question rather than on the project value. The Texas RUC model offers a more precise and detailed methodology that, if used along with other liquidated damages methodologies, might present a less loaded and more precise standard for DLD assessment.

#### **NCHRP Report 451**

A recent NCHRP report suggests combining incentive-disincentive provisions with liquidated damages provisions. When using liquidated damages, the incentive and disincentive can be determined from the same contracted completion date. When adding RUC costs to disincentive-incentive provisions, agencies create a penalty that can be assessed when disincentives run their course or prove ineffective in motivating project completion. See NCHRP Report 451 (2001), *Guidelines for Warranty, Multi-Parameter, and Best Value Contracting*, pp. 49-50—[http://trb.org/trb/publications/nchrp/nchrp\\_rpt\\_451-a.pdf](http://trb.org/trb/publications/nchrp/nchrp_rpt_451-a.pdf).